CHAPTER

5

Creating and Using Background Images

Preparing Web Page Backgrounds

In this chapter, you will:

- Use painting tools
- Work with layers
- Use filters in Photoshop and ImageReady
- Design background images
- Use background images with HTML and CSS

One of the quickest ways to add interest to a Web page is to use a colored background. Although Hypertext Markup Language (HTML) makes it easy to color a background, it limits you to using backgrounds of one solid color. Fortunately, browsers also support the use of images in backgrounds. Many Web designers use background images because they are easy to use and have an immediate visual impact. As with most design elements, however, background images can be overused, creating Web pages that are difficult to read.

Creating a background image gives you an opportunity to be creative. You can use any Web graphic, edit existing images, and generate new ones. To work with background images, you need to be comfortable with image-editing software features, including painting tools, image filters, and layers. This chapter focuses on using Adobe Photoshop to create background images.

After developing a background graphic, you must use HTML or Cascading Style Sheets (CSS) to insert it into a Web page. This chapter defines backgrounds and explains how to use them in tables with both HTML and CSS.

Using Painting Tools

The Photoshop paint tools include the Eraser, Pencil, Airbrush, Paintbrush, Clone Stamp, Pattern Stamp, Smudge, Blur, Sharpen, Dodge, Burn, and Sponge. You apply each of these tools with a brush that varies in size and shape and leaves a mark when you drag it across an image. If you have already used a painting program, such as MacPaint or Windows Paint, most of the icons and conventions in the Photoshop paint tools will be familiar to you. In addition to these common features, Photoshop and ImageReady let you precisely control how these tools work.

To use a painting tool, you select it from the toolbox and then change its options to suit your task. You change options for the painting tools in the Options bar, shown in Figure 5-1.

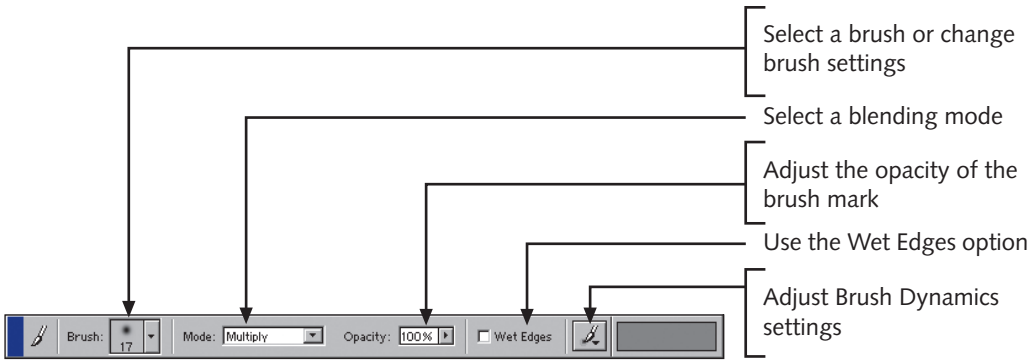

Figure 5-1 The Options bar with the Paintbrush tool selected

Using the Editing Brushes

The Brush palette contains many predefined brushes of different sizes and shapes. Some are round and others have spatter patterns. To select a brush, first click the inverted triangle next to the brush sample to open the Brush palette, and then click the brush you want. You also can create and edit your own brushes. To do so, open the Brush palette menu, and then click New Brush. In the New Brush dialog box, set the brush options.

If you want more control over the brush you selected, or want to edit the settings, click the icon in the Brush box in the Options bar. The Brush Options dialog box opens, as illustrated in Figure 5-2, where you can change the settings. The changes you make affect only the selected brush.

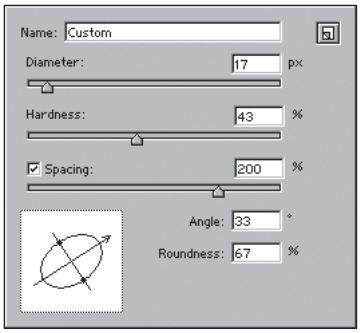

Figure 5-2 The Brush Options dialog box

Each option in the Brush Options dialog box is explained in the following list:

- **Diameter** is the width of the brush head measured in pixels.
- **Hardness** determines the softness of the brush mark. A setting of 100% means that the brush mark has a hard, unfeathered edge. A setting of 0% makes the mark very soft, fading from opaque at the center to transparent at the edge.
- **Spacing** controls whether the brush mark is a solid or dotted line. The spacing value refers to the size of the space between dots. A value of 25% produces a normal, solid line, while a value of 100% produces a dotted line, with the dots and the distance between them evenly spaced. A value of 1% produces an extra-thick feathered line.
- **Roundness** of the brush can vary from 100% (perfectly round) to 0% (a flat line). A flat brush is useful for producing calligraphic effects.
- The **Angle** setting applies only if you change the Roundness of the brush head. If the brush head is an ellipse, the angle determines the brush head's orientation, such as horizontal or vertical.

Use the options in the Brush Options dialog box to create elliptical brush heads. Brushes can be any shape, however, including a random shape such as the spatter brush, or a custom shape based on part of an image. You can use an image-based brush to apply the image anywhere you click the brush. In the following steps, you create such a custom shape.

To create a custom shape based on part of an image:

1. Select the **Rectangular Marquee** tool. In the Options bar, make sure the Feather value is set to **0**.
2. Select an area of an image with the Rectangular Marquee tool.
3. Click **Edit** on the menu bar, and then click **Define Brush**. Photoshop adds a new brush to the palette, based on the selection area. The new brush contains no color information; the color of its mark is determined by the current foreground color.

Using Blending Modes

In the Options bar you can select a mode for blending the effect of the Paintbrush tool with the existing image. The Blending mode controls how the painting tool affects the pixels it paints. The **base color** in the image combines with the foreground color, or **blend color**, and produces the **result color**. The default is the **Normal** mode, which replaces the base color with the blend color. For special effects, you can use one of the other 17 modes that lighten or darken the image in various ways.

Each setting in the Options palette is explained in the lists following the next four figures. Figure 5-3 shows a graphic with Dissolve, Multiply, Screen, and Overlay effects. Figure 5-4 shows the same graphic with Soft Light, Hard Light, Color Dodge, and Color Burn effects. The Darken, Lighten, Difference, and Exclusion modes are illustrated in Figure 5-5. The Hue, Color, Saturation, and Luminosity modes are illustrated in Figure 5-6. To better illustrate the results of using these modes, the figures show an entire image with the different modes applied.

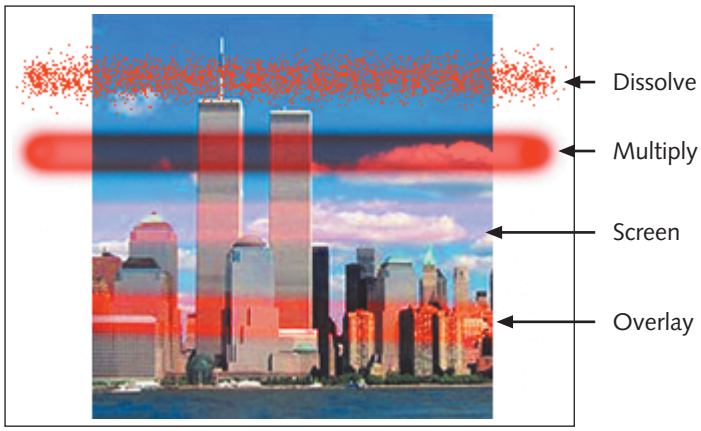

Figure 5-3 The Dissolve, Multiply, Screen, and Overlay effects

- The **Dissolve** mode displays opacity as a spatter pattern. The effect is most obvious with a layer of opacity around 50%.
- The **Behind** mode paints only on the transparent part of a layer. This mode has no effect on images that already contain white or colored pixels, and is not shown in the figure.
- The **Multiply** mode combines the base color and the blend color. If either color is black, the resulting color is also black; mixing with white does not change it. This mode usually produces a darker color than the blend color.
- The **Screen** mode is the same as the Multiply mode, but it inverts the blend and base colors, producing a lighter color. To invert means to use the opposite hue on the color wheel. For example, invert to use cyan for red or yellow for blue.

- The **Overlay** mode is similar to Normal mode with an opacity of 50%, but does not affect white and black pixels.

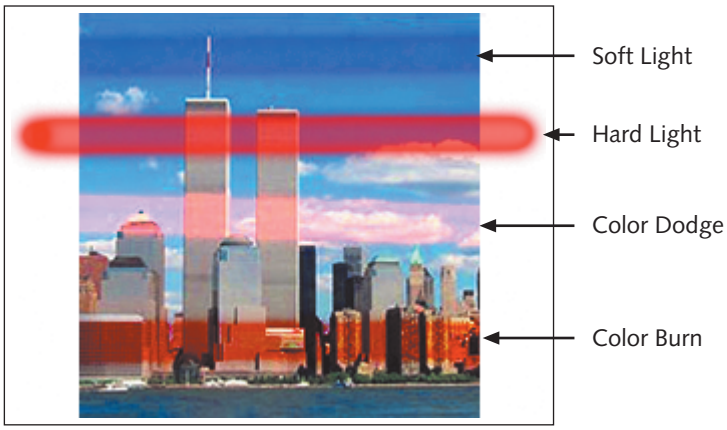

Figure 5-4 The Soft Light, Hard Light, Color Dodge, and Color Burn effects

- The **Soft Light** and **Hard Light** modes boost contrast, by lightening light colors and darkening dark ones. The Hard Light mode has a stronger effect.
- The **Color Dodge** mode lightens the base colors toward the blend color, ignoring black pixels.
- The **Color Burn** mode darkens the base colors toward the blend color, ignoring white pixels.

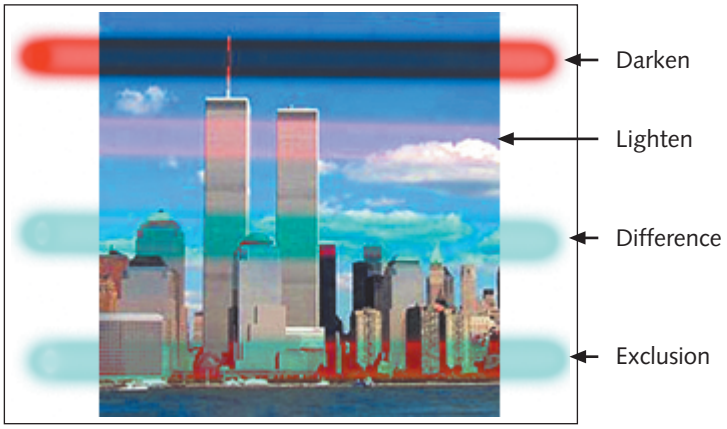

Figure 5-5 The Darken, Lighten, Difference, and Exclusion effects

- The **Darken** mode compares the base and blend colors, and then applies the darker of the two.

- The **Lighten** mode compares the base and blend colors, and then applies the lighter of the two.
- The **Difference** and **Exclusion** modes compare the base and blend colors and subtract the darker from the lighter. This is not the same as inverting the colors, but it looks similar. The Difference mode produces slightly higher contrast.

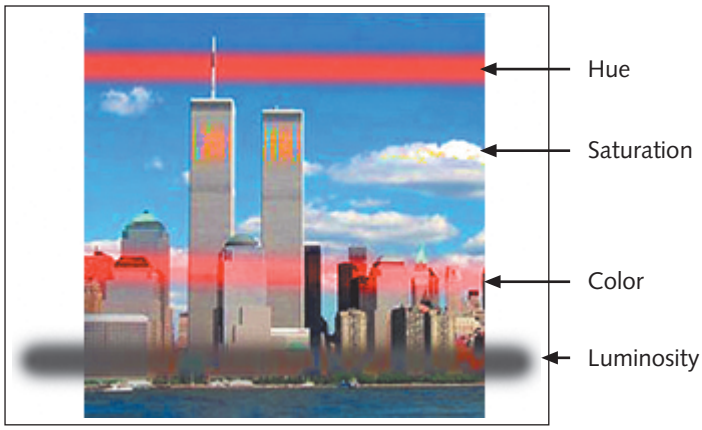

Figure 5-6 The Hue, Color, Saturation, and Luminosity effects

- The **Hue** and **Color** modes produce an effect similar to using the Colorize feature in the Hue/Saturation dialog box, except that the blend color determines the hue.
- The **Saturation** mode produces the same effect as using the Saturation slider in the Hue/Saturation dialog box. Both make the saturation of the image more like the saturation of the blend color.
- The **Luminosity** mode preserves the hue and saturation of the original colors, but changes the brightness to that of the blend color.

Changing Brush Mark Opacity

Opacity refers to the transparency of the brush mark. A setting of 100% opacity is fully opaque; 0% opacity is fully transparent. Fully opaque brushes produce simple brush marks. More transparent ones produce brush marks like those created by watercolors.

Using Wet Edges

When the Paintbrush tool is set to the Normal mode, the Wet Edges check box is available in the Options bar. Selecting the Wet Edges box lets you create a watercolor effect, so the edges of the brush mark are darker than the interior. Figure 5-7 shows marks made by the Paintbrush tool with and without Wet Edges selected.

In Figure 5-7, the two brush marks on the left have opacity set to 100%. The two on the right have opacity set to 50%.

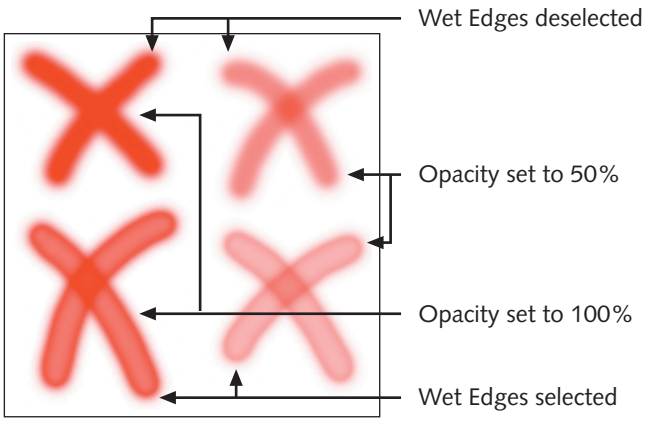

Figure 5-7 Changing opacity and using Wet Edges

Changing Brush Dynamics

Photoshop and ImageReady let you create dynamic effects—those that change over time—with brush marks. To change brush dynamics, click the brush list arrow in the far right of the Options bar, and then click an effect. For example, click Fade and set the brush size to fade over 10 steps, which means that the brush mark shrinks from full-size to nothing over 10 steps. Each step equals the size of one brush head. Depending on the brush tool you select, you also can set dynamic effects for color and opacity. The results of these different settings are shown in Figure 5-8.

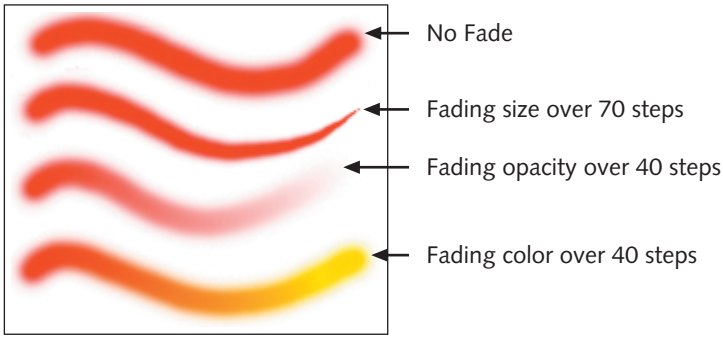

Figure 5-8 Different brush dynamics

If you are using a tablet to draw in Photoshop, you can set the stylus to control brush dynamics. To do so, click the Brush Dynamics button in the options bar to open the Brush Dynamics dialog box. Then set size, opacity, or color to stylus.

Changing the Cursor

You can edit preferences in Photoshop to control the shape of the pointer used with the Paintbrush tools.

To edit preferences:

1. Click **Edit** on the menu bar, point to **Preferences**, and then click **Display & Cursors** to open the Preference dialog box, illustrated in Figure 5-9.
2. Select a pointer style. Choose **Standard** to use the Paintbrush icon as the pointer. Choose **Precise** to use a crosshair pointer. Choose **Brush Size** to use the selected brush icon as the pointer.

   Only the Brush Size pointer visually indicates the size and shape of the brush mark. You also can toggle between the Precise and Brush Size pointer by pressing the Caps Lock key.

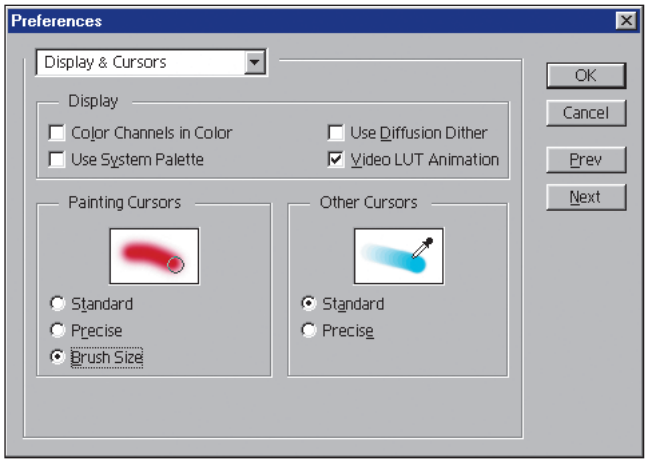

Figure 5-9 Selecting a pointer style in the Preferences dialog box

Working with Layers

Adobe added the layers feature to Photoshop (version 4) to meet the needs of graphic artists and designers. Layers are so useful in image editing that they have their own palette window and menu. Think of a layer as a sheet of clear plastic. You can paint it, and the area not covered by paint stays transparent. You can have many layers stacked on top of each other, with a different graphical element on each layer. Having distinct layers lets you rotate, color, and manipulate each element separately, without affecting the others. For example, if your complete graphic includes images of a mountain, sun, and hawk, you can store each image on a separate layer, and then change only one image, such as the hawk, without affecting the mountain or sun.

Creating Layers

Create a layer when you want to store an image on it. Every image has a default background layer. The easiest way to add a new layer is to copy an area in the image and then paste it. Instead of incorporating the pasted graphic into the existing image, Photoshop creates a layer on top of the default layer or background layer. You also can create an empty layer: click the right triangle in the Layers palette, and then click New Layer. (You also can click Layer on the menu bar, point to New, and then click Layer, or click the Create New Layer icon at the bottom of the Layers palette.) After you create a layer, you can set the layer options, which are illustrated in Figure 5-10.

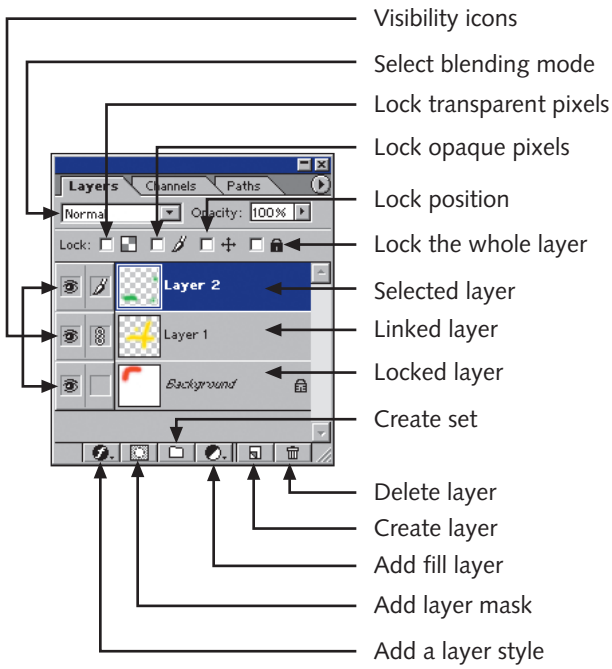

Figure 5-10 The Layers palette

Setting Layer Opacity

Use the Opacity text box in the Layers palette to control the transparency of a layer. A setting of 0% opacity means that the layer is fully transparent and the colored pixels in the layer are invisible. A setting of 100% opacity means that the layer is fully opaque and the elements in the layer completely obscure the layers behind it. However, even a fully opaque layer can contain transparent areas that make lower layers visible.

Using Modes

The mode of a layer determines how it blends with the layers below it. The modes for layers are the same as those for the Painting tools (see Using Blending Modes earlier in this chapter). Layer modes differ in how they affect the layer's appearance. You change a layer's blending mode only when you want to create complex effects; Normal mode is adequate for most projects. Still, you should experiment with the different modes to see their effects. Note that you cannot adjust the opacity or mode of the base background layer.

Locking Layers

Near the top of the Layers palette are check boxes for locking the transparent pixels, image pixels or position of a layer, or to lock the entire layer itself. You check a box to prevent the particular layer part from being edited, as described in the following list:

- Locking transparent pixels means that only colored pixels change when you use a tool or filter. This is the same action as selecting all nontransparent pixels with the Magic Wand tool.
- Locking image pixels has the reverse effect of locking transparent pixels—only transparent pixels are affected by tools or filters.
- Locking position prevents the layer from being moved with the Move tool.
- Locking all prevents any edits to the layer, although you still can move the layer in the stacking order of the Layers palette.

Setting Visibility

On the far left of each layer row in the Layers palette is a check box for visibility, indicated with an icon of an eye. Use the Visibility check box to toggle a layer between 0% opacity and the value set in the Opacity window. Click the eye icon in a layer's row of the Layers palette to show or hide the layer. Hiding one layer lets you see how other layers look without the selected layer blocking the view.

Linking Layers

The selected layer is indicated by a paintbrush icon next to the image preview in the Layers palette. Clicking the second box in an unselected layer's row adds a chain icon to the box, indicating that the two layers are linked. Linked layers accept modifications you make to other layers in the same chain. If you rotate or apply a filter to one of the linked layers, for example, all the other linked layers change as well.

Adding Other Layer Options

You can add layer effects to any layer other than the background layer. Other layer options are described in the following list:

- Click the Add Layer Style button at the bottom of the Layers palette to add styles such as Drop Shadow, Bevel, and Emboss. (Layer styles are covered in detail in the "Creating and Using Buttons" chapter.)
- Click the Add Mask button at the bottom of the Layers palette to create a new mask. This creates a new channel, visible in the Channels palette, that selectively hides areas of layers behind it.
- Click the New Set button to create a new layer set. Layer sets are similar to folders containing layers. If you have many layers in an image, it is convenient to organize them in separate sets.
- Click the New Fill or Adjustment Layer button to add special layers you use for experimenting with color. Fill layers allow you to quickly fill an entire layer with a solid color, gradient, or pattern. Adjustment layers allow you to add controls such as level adjustment to a separate layer. When visible, these layers affect all layers below them in the stacking order.

Merging Layers

The GIF and JPEG formats cannot contain layer information, so before you save an image in a Web format, you must merge all the layers. Merging layers means combining two or more layers into one. By using the **Merge Linked** command from the Layers palette menu, you control which layers merge. If you want to merge all the layers into one, you use the **Flatten Image** command. The **Merge Down** command merges all layers behind the selected layer. The **Merge Visible** command combines all visible layers.

To save an image file with layers, you must do so in the proprietary PSD format of Photoshop. You must also flatten the layers using the Flatten Image command before you can save an image in a Web format.

Arranging Layers

You can change the stacking order of your layers to see how the image looks with different parts in front of or behind other parts of the image. To change the stacking order, drag the layer row to the desired position in the Layers palette. You also can click Layer on the menu bar and then select options from the Arrange submenu. You can bring a layer forward one position or all the way to the front, send it back one position or to the very back. Nothing can be placed behind the background layer, so a layer sent to the back is positioned directly above the background layer.

Transforming Layers

The transformation options in the Edit menu apply to the selected area of a layer. If no area is selected, the options apply to the entire layer. Click Edit on the menu bar and then point to Transform to open the Transform submenu. From there you can select one of several options:

- *Scale*: Increase or decrease the size of the selection by changing the scale. As you drag to scale the image, hold the Shift key to maintain the proportions of height and width.
- *Rotate*: Rotate the selection around a central anchor point by dragging the side or corner tabs. You also can drag the central anchor point to a new position to change the center of rotation.
  Figure 5-11 shows a selection being rotated.

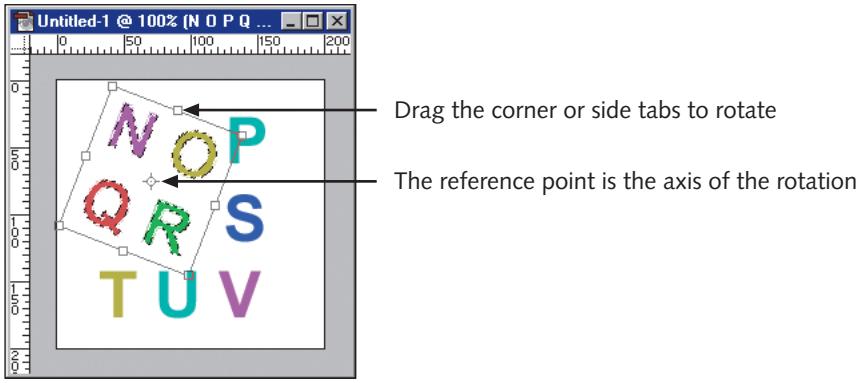

Figure 5-11 Rotating around a central anchor point

- *Skew*: Change the angle of the selection by skewing the sides. Skew maintains parallel edges of the selection.
- *Distort*: Completely change the shape of the selection by dragging any side or corner tab. Distort does not maintain parallel edges of the selection.
- *Perspective*: Simulate 3-D perspective by dragging the corner tabs. The selection then appears to recede into the distance. Figure 5-12 shows a selection being transformed with skew, distort, and perspective
- *Rotate by degree*: Rotate the selection in fixed amounts, either 90 degrees clockwise or counterclockwise, or 180 degrees.
- *Flip*: A horizontal flip switches the left and right sides of the selection, creating a mirror image of the original selection. A vertical flip switches the top and bottom of the selection. Figure 5-13 shows the results of rotating and flipping a selection.

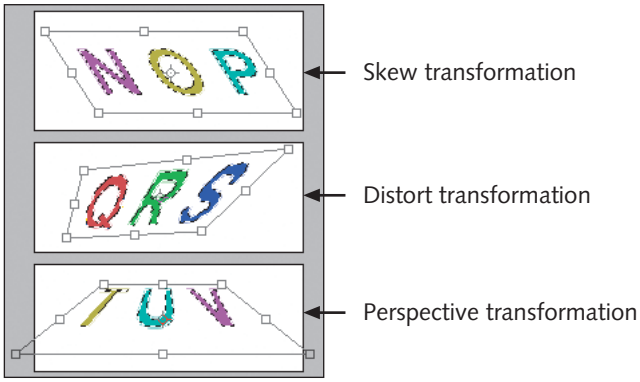

Figure 5-12 Skewing, distorting, and adding perspective to a selection

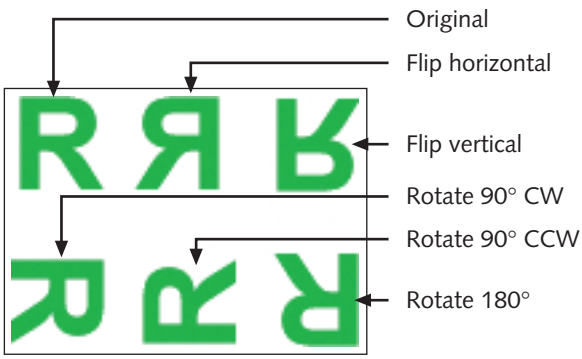

Figure 5-13 Rotating and flipping a selection

You also can set your own transformation to produce special effects.

To set your own transformation:

1. Select the **layer** you want to transform.
2. Click **Edit** on the menu bar, and then click **Free Transform**. You see a transformation box around the selection. The box has tabs in the corners and in the centers of each side and a reference point in the middle.
3. Drag the **tabs** to translate, scale, skew, or rotate the layer. When you finish the transformation, double-click within the selected area to set the changes.

When transforming a layer, the Options bar displays text fields for entering numeric values for the transformation, as shown in Figure 5-14. It often is easier to control transformations using numeric values than by dragging the selection tabs.

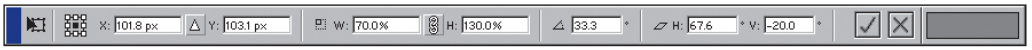

Figure 5-14 Transformation options

The transformation options are explained in the following list:

- *X and Y*: Use these text boxes to set the position of the selection. By default the values are absolute, measured from the upper-left corner of the image. Click the triangle icon between the X and Y fields to use relative positioning for moving the reference point. This measures the position of the selection relative to its initial position.
- *W and H*: Use these text boxes to set the scale of the selection as a percentage of the original. Adjust the width by changing the W value, and adjust the height by changing the H value. A value of 200% doubles the scale, and a value of 50% halves it. Click the chain icon to maintain the aspect ratio of height and width. This constrains the proportions of height and width so that changing one value changes the other by the same amount.
- *Angle icon*: Use this icon to control the angle of rotation in degrees.

  H and V: Use these text boxes to control the horizontal and vertical skew in degrees.
- *Ok and Cancel buttons*: Click the check mark button to set the transformation. Click the X button to cancel the transformation.

The Options bar does not include special fields for distort or perspective.

Using Filters in Photoshop

A filter often is called a **plug-in**. Just as Web browsers use plug-in programs to render images, Photoshop uses plug-ins to add visual effects to an edited image. Most filter plug-ins work by scanning an image, pixel by pixel, performing a mathematical transformation as they go. The Blur filter, for example, interpolates the values for every pair of adjacent pixels. This reduces the contrast of edges, and makes an image appear softer. Filters in Photoshop work only when images are in RGB color or grayscale.

The benefit of using plug-in filters is that third-party development companies and individual developers can create their own filters and share their work with other users who can plug them into Photoshop. Many filters that are now standard in Photoshop were originally written by users. Several additional third-party plug-ins also are available on the Adobe Web site and elsewhere on the Web.

Filter Categories

Photoshop includes too many filters to cover individually in this book. Most have settings you can adjust, allowing you to create many different effects. The best way to see what individual filters do is to experiment with them on an original image. You already have covered some filters, such as Sharpen and NTSC Colors, to solve problems in images; other filters produce artistic effects. Photoshop groups filters into nine categories, which you access from the Filter menu.

- **Artistic** filters imitate other media by making the source image appear to have been created with traditional techniques like watercolors or colored pencils. For example, the **Plastic Wrap** filter can help you create fire and smoke effects.
- **Brush Stroke** filters also imitate other media with techniques such as crosshatching or paint spattering.
- **Distort** filters do not change the values of pixels as much as translate them across and around the image, creating the appearance of ripples and bumps.
- **Pixelate** filters group similarly colored, adjacent pixels into clusters to create mosaic and pointillist effects.
- **Render** filters are more sophisticated and don't easily fall into the other categories. The **Clouds** filter generates a cloud pattern using the existing Foreground and Background colors. The **Difference Clouds** filter is similar, but combines a cloud pattern with the existing image.
- **Sketch** filters are similar to the Artistic and Brush Strokes filters, and imitate traditional media by adding texture to the original image. The **Bas Relief** filter produces particularly striking and interesting effects.
- **Stylize** filters add artificial depth by exaggerating the edges in an image. The **Emboss** filter is one of the most popular, and simulates a 3-D engraving of the original image.
- **Texture** filters are combinations of the Pixelate and Sketch filters. They group similar pixels into clusters to create texture effects.

- The **Other** filter category includes the **Custom** filter, which lets you create your own filter, and the **Offset** filter, which lets you preview the edges of tiled background images. The effect of the Offset filter is shown in Figure 5-15. The remaining filters are advanced and beyond the scope of this book. They include Dither Box (to create and apply custom dither patterns), High Pass (to exaggerate edges), Maximum (to enhance the light areas of an image), and Minimum (to enhance the dark areas of an image).

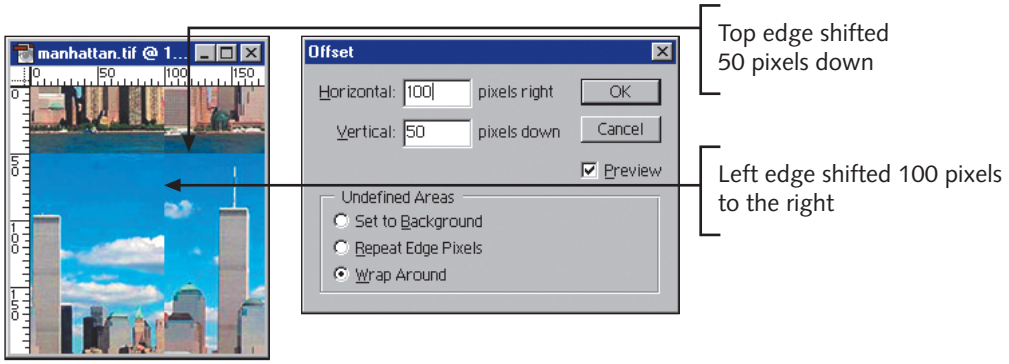

Figure 5-15 The Offset filter

Each filter in the previous list works in one of three ways:

- Most filters must be applied to an existing image. Running the Glass filter, for example, on a white or colored background produces no noticeable effect. You can, however, run the Noise filter or draw random lines on a blank image to give the filters some image data with which to work.
- Some filters, however, produce an effect even when applied to a blank image. The Patchwork and Conte Crayon filters, which add texture to images and solid colors, are two examples of such filters.
- A few filters completely overwrite any image to which they are applied. For example, the Clouds filter replaces the existing image with a new randomized cloud pattern.

Using the Tile Maker Filter

ImageReady includes one filter in the Other category that Photoshop does not. The Tile Maker filter allows you to create seamless background images. When used as a background image in a Web page, most images create unattractive seams as they tile across and down the page, as illustrated in Figure 5-16.

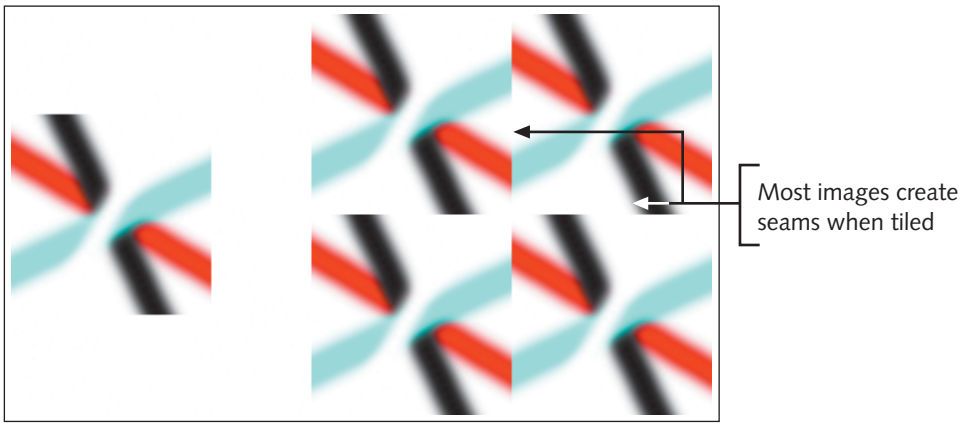

Figure 5-16 Tiled image with visible seams

In Photoshop, you can eliminate the appearance of these seams by blending opposite edges or by creating a **kaleidoscopic** image. This method makes the image tile seamlessly, as shown in figure 5-17. A kaleidoscope is an image that is flipped horizontally and vertically so that each edge is a mirror reflection of the opposite edge, as illustrated in Figure 5-18. The figure shows how turning the image into a kaleidoscope also reduces the appearance of tiling seams.

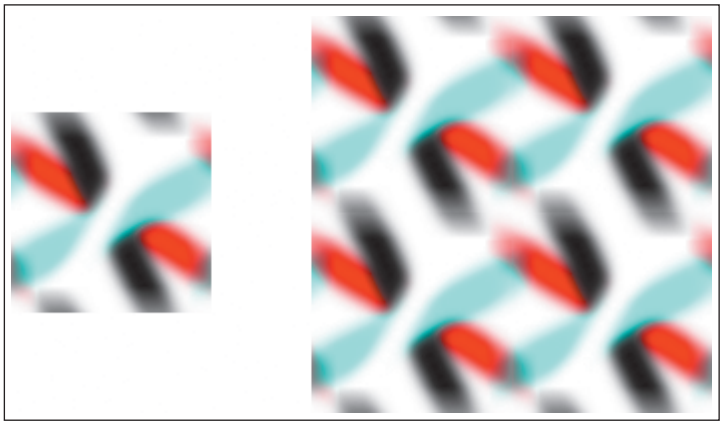

Figure 5-17 Blending opposite edges

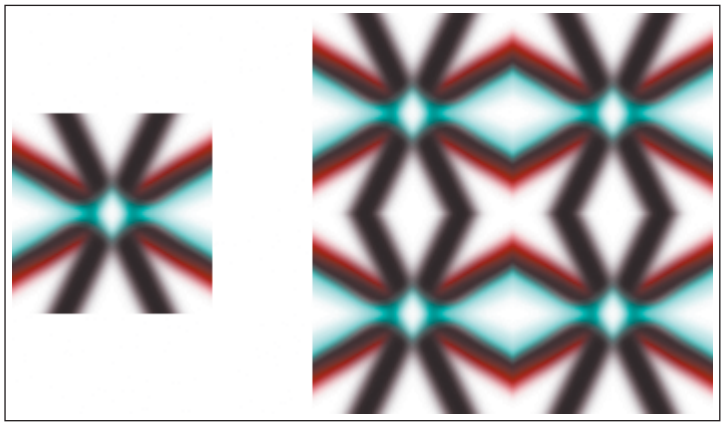

Figure 5-18 Making the image kaleidoscopic

The Tile Maker filter in ImageReady automates both of these techniques. To open the Tile Maker dialog box shown in Figure 5-19, click the Filter menu in ImageReady, point to Other, and click Tile Maker. When you select **Blend Edges**, the filter copies the outer edge of the image to the opposite side, fading it into the existing image. When you select **Kaleidoscope**, the filter copies the image, flips it horizontally and vertically, and blends these copies with the original to create a symmetric design.

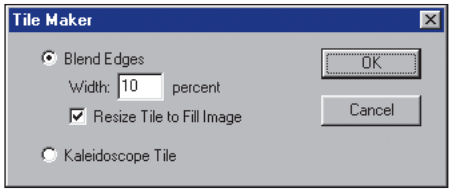

Figure 5-19 The Tile Maker filter in ImageReady

Designing Background Images

Most Web pages include a background image to add visual interest to the page. To create a solid color background, set the background color in HTML. You should use images when you want a textured background or a layout that requires large curves, which you cannot easily create using HTML tables.

You can use animated GIFs as background images, but many users find them annoying. The background should support the overall design, which means keeping it understated.

When designing your background image, consider the page as a whole and how the background fits with the other page elements. To achieve the best effects, you should reduce contrast, use repetition and tessellation, and find the appropriate dimensions for the image.

Reducing Contrast

To read text in a Web page, there must be contrast between the foreground and background. To achieve this, you must use a low-contrast background image. A high-contrast background makes the foreground text illegible because the text can't be distinguished from the background, as shown in Figure 5-20. Use a low-contrast background to create plenty of contrast between the background and the text. Most sites use black text, so light, faded backgrounds make text easier to read. Bright, textured background images often obscure text.

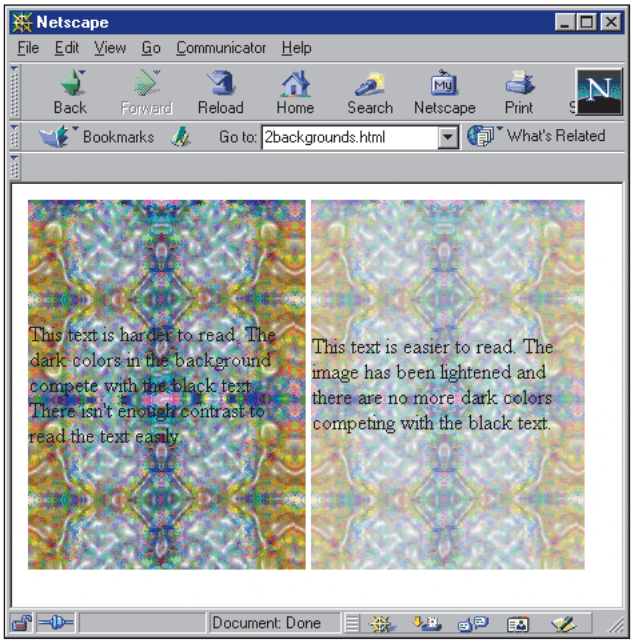

Figure 5-20 Background images with high and low contrast

An easy way to reduce contrast is with the Brightness/Contrast dialog box, illustrated in Figure 5-21. This dialog box appears when you click Image on the menu bar, point to Adjust, and then click Brightness/Contrast. Drag the sliders to lower the contrast and raise the brightness. This produces a light, faded image that does not compete with the dark text above it. Another way to reduce contrast is to first open the Levels dialog box by clicking the Image menu, pointing to Adjust, and clicking Levels. Then raise the value of the black Output Level.

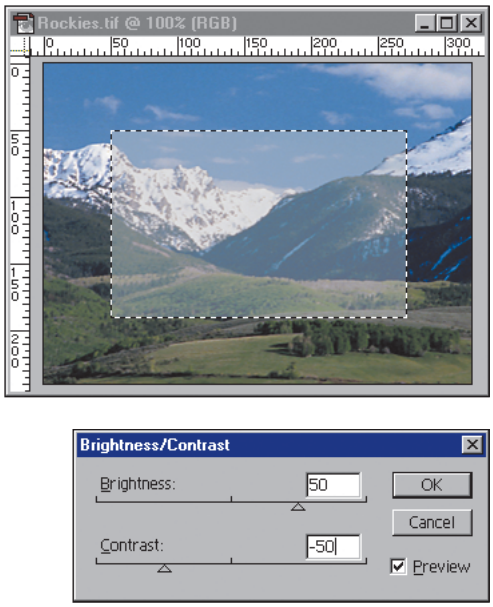

Figure 5-21 Reducing contrast

Color contrast also helps readability. For example, if you have a dark blue background, light yellow text shows up much better than light blue text. The light blue text has lightness contrast with the dark blue background, but the yellow has both lightness and hue contrast.

Using Repetition

Background images, by default, repeat across the page from left to right and top to bottom. The right edge of one image copy butts up to the left edge of the copy next to it, and the bottom and top edges also touch. This effect usually is called **wallpapering** or **tiling**. Tiling sometimes creates odd or unattractive patterns that aren't obvious when viewing the single untiled image. Tiling is obvious when adjacent edges of the tiled image do not match, producing visible seams. The easiest way to avoid this problem is to have blank space around the objects in the image. You then avoid having hard lines where the tiles touch. Most of the artistry in creating background images is in having them repeat without seeming to repeat, and having the repetition be seamless.

Understanding Tessellation

Tessellation is a pattern that fits together tightly like a jigsaw puzzle, with no blank space left over. To create a tessellated image, like the one shown in Figure 5-22, you need to edit the edges of the image, the places where it bumps up against itself, using tools such as the Tilemaker or offset filters. The image needs to seem continuous when it tiles

across the screen, which means the top and bottom edges have to match, and the left and right edges have to match. A tessellated image appears to be one large, continuous image when tiled.

The master of tessellated images is M.C. Escher, a Dutch artist who created his most famous works using woodcuts—carving a pattern in a flat piece of wood, then rolling ink onto the wood and pressing paper against it.

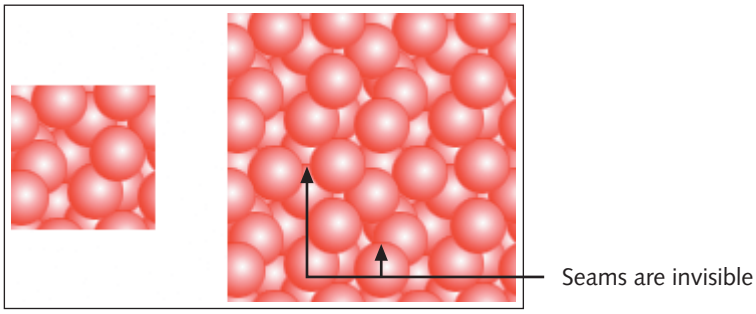

Figure 5-22 A tessellated image

Finding the Appropriate Dimensions

When using a large background image, you should avoid tiling altogether. Imagine that your design contains a large curved line that extends from the upper-right of the screen to the lower-left, like the one shown in Figure 5-23. The image doesn't repeat, so you cannot create the curved effect with a tiled background. In fact, if your background image does tile, your whole design might fail. Users with extra-wide monitors might see the left edge of the second tile of your background image. So you want to make the background image large enough to spread across the whole monitor, even when the monitor is set at full-screen.

The average monitor size increases every year. To fill the largest screens, a full-page background image should now be at least 1280 pixels across. Only someone with an even larger monitor would see a full-page background tile to the side. As for height, you control page length by how much content you put in. Most pages are longer than they are wide, so generally it is easier to use a background that tiles vertically. The drawback to using large images is that they also tend to have large file sizes. Although the user's browser caches the image, you still don't want to force the user to download large images on the first page. If you use highly patterned or faded images in the background, you can heavily optimize the image with no noticeable degradation of image quality.

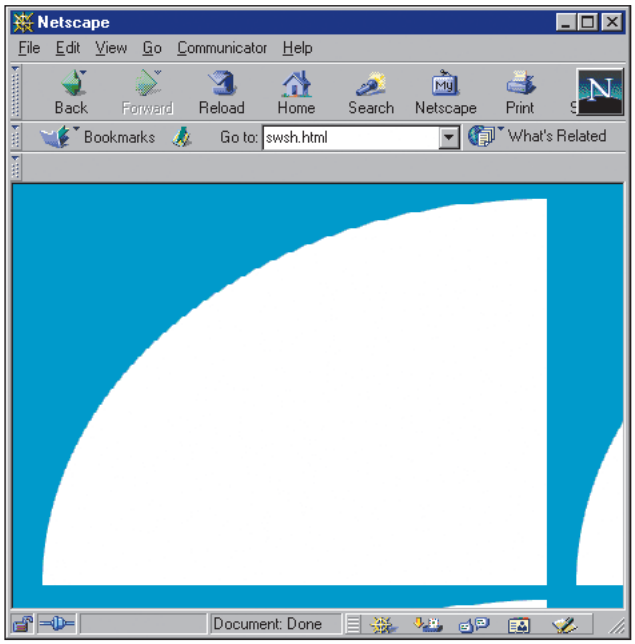

Figure 5-23 Background image that tiles unattractively

If you have a small tiling area, such as a two-color, 8 × 8 pixel checkerboard like the one shown in Figure 5-24, you might think that the ideal image would be a two-color, 8 × 8 pixel image. The drawback to using such small images is that the browser actually takes longer to render them on the screen. An 8 × 8 pixel image on an 800 × 600-pixel window would have to tile over 7000 times. Even a browser on a fast computer would take a few seconds to display this tiling. A few seconds is too long. A better choice is to stick to background images that are at least 30 × 30 pixels. You might have duplicated information, and the load time will be a little longer, but the render time will be much faster. In Figure 5-24, the image on the left loads slightly faster, but renders much more slowly than the image on the right.

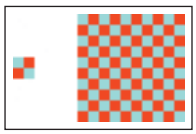

Figure 5-24 Different sizes of a tiled image

Using Background Images in Web Pages

After you create a background image, you need to incorporate it into a Web page. You can either use HTML or CSS.

Defining Backgrounds with HTML

The simplest type of HTML background is shown below:

```
<body BGCOLOR="yellow">
```

This coding sets the BGCOLOR attribute of the BODY tag to yellow. The next easiest background is to add an image to the body. You can use any image you want, but remember, it has to be in a Web format such as GIF, JPEG, or PNG.

```
<body BACKGROUND="my_background.jpg">
```

This code uses a different attribute, the BACKGROUND attribute. You can use both the BGCOLOR and BACKGROUND attributes. If the image failed to load for some reason, the background color would appear; otherwise, the image would cover the color altogether. If the background image were a GIF image with transparency, the background color would show through the image.

HTML tags often are written in uppercase to make them more distinguishable from the rest of the text. However, the new standard for HTML, known as XHTML, requires that all tags be written in lowercase.

Using Table Backgrounds with HTML

All browsers support using backgrounds in the body tag. Modern browsers also support the BACKGROUND attribute in table delimiter (TD) tags.

You use the background attribute in TD tags the same way you do in the BODY tag. In the following example, the background image is in a directory called images and appears in the left cell of a two-column table. The resulting image is shown in Figure 5-25.

```
<table WIDTH="200">
     <tr>
          <td BACKGROUND="/images/myBackground.gif">
               some text
          </td>
          <td>
               some other text
          </td>
     </tr>
</table>
```

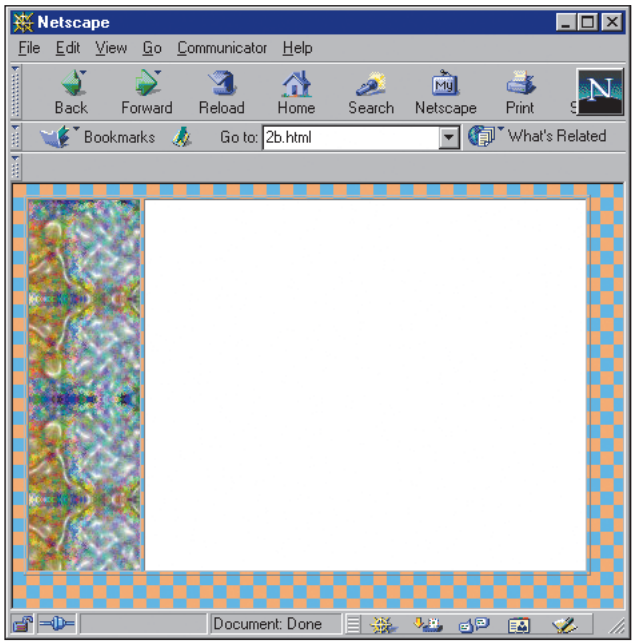

Figure 5-25 A background image in a table

Using more than one background image per page usually is considered excessive. Background images tend to draw attention away from the actual content of a Web page, and multiple background images may distract the reader. If you have a patterned background in the body, you probably should not use backgrounds in your tables. If you have a solid-color background and want to use a background in a table cell, make it small and create the background image with reduced contrast.

Although all browsers support background images in the body of a Web page, only Netscape and Internet Explorer versions 4 (or later) browsers support table backgrounds. Therefore, if users with Netscape version 3 visited your page, the background images would not be visible.

The preceding example is why you should use both the BACKGROUND and BGCOLOR attributes of the BODY and TD tags; users with older browsers will get the color, and users with newer browsers will get the image.

Using Background Images with CSS

CSS (**Cascading Style Sheets**) is a way to define how HTML displays Web pages. You use CSS by writing a style sheet inside an HTML document. The style sheet acts as a library of instructions for that page. CSS can accomplish all the effects that HTML can, plus many more.

Using style sheets to add backgrounds to Web pages has two advantages: You can control how the tiling repeats, and you can add backgrounds to additional block elements. The basic style sheet to assign a background image to the BODY tag looks like this:

```
<style TYPE="text\css">
<!—
body {
     background-image: url(images/my_image.jpg)
     }
//—>
</style>
```


This code can appear anywhere in the HTML document but is placed conventionally between the HEAD tags. The style sheet sets the background-image attribute of the BODY tag to the file named my_image.jpg, inside the directory named images. The url in the code tells the browser to expect a filename, as opposed to a numeric value. Once the style sheet is in place, you don't have to declare anything special with the BODY tag.

Using Background Images in Tables with CSS

If you want to add a background image to a table cell after adding one to the body, you might be tempted to create a style sheet declaration for the TD tag that looks just like the one for the BODY tag. The problem with this method is that every table cell on the page will then have the same background image. In most cases you won't want to use this approach.

Every Web page has exactly one BODY tag, so you can directly declare the attributes of the element. With tags such as TD, however, you're better off declaring a class in the style sheet that you then refer to explicitly in the TD tag. The **class** contains a definition for how a tag should appear, but is not associated with any particular tag in the style sheet. Only when a tag calls the class does it follow the class definition.

Here's an example:

```
<style TYPE="text\css">
<!—
body {background-image: url(images/my_image.jpg)}
.bgimage {background-image: url(images/my_image2.jpg)}
//—>
</style>
```

The class in the above example has the arbitrary name of .bgimage. The browser knows it's a class because a period occurs before the name. This class is set to another image in

the images directory named my_image2.jpg. To use this class, you simply add the CLASS attribute to the appropriate TD tags:

```
<table WIDTH="200">
     <tr>
          <td CLASS="bgimage">
               some text
          </td>
          <td>
               some other text
          </td>
     </tr>
</table>
```

This code creates a table with two cells, the left one with a background image. Note that when the class name is used as a value, the period is dropped from the name. Now that you have this class, you can assign it to any block element, including paragraphs (P), headers (H1, H2, and so on), and block quotes. You don't need to change the style sheet; just add the class attribute to the appropriate tag.

Controlling Repetition with Style Sheets

In addition to assigning backgrounds to other block elements, style sheets allow you to determine how a background image repeats in a Web page. Recall that by default, all background images tile across the screen from left to right and top to bottom. You can use CSS to force the background to repeat only horizontally or vertically.

The following style sheet uses the background-repeat attribute to control how the background image tiles:

```
<style TYPE="text/css">
<!—
body {
background-image: url(my_image.jpg);
     background-repeat: repeat-y;
}
//—>
</style>
```

In the preceding example, the background-repeat attribute is set to the value of repeat-y, which tells the browser to tile the image only along the y-axis (up and down, but not across). To create a page with a white background and a patterned column on the left, you could create a two-color image that is 1280 pixels wide and just a few pixels high. The image would repeat down the page, creating the colored column on the left.

The drawback to this method is that you have to use a large image, even though all but the strip on the left is solid white. Modern browsers allow a better solution. Using style sheets, you can create columns without all the extra white area on the side. Just create the image for the patterned column, create a style sheet that uses the background-repeat

attribute of the body element, and set the value to repeat-y. The result of this technique is shown in Figure 5-26.

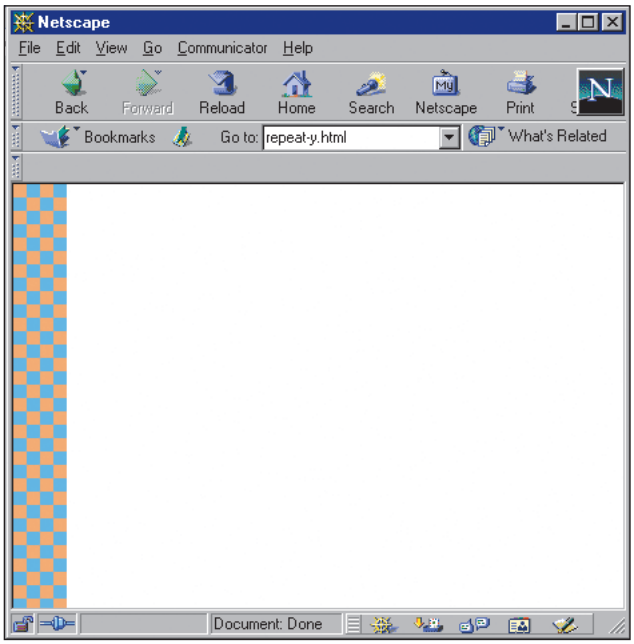

Figure 5-26 Tiling a background image in one direction

Although background is an attribute of the BODY tag, and background-image is an attribute of the body element, you cannot switch them around. For example, you could not use:

```
<body BACKGROUND="my_image.jpg" background-repeat:
repeat-y>
```

Also note how the style sheets use colons (:) instead of equals signs (=) to set values.

Chapter Summary

- Every image-editing program offers painting tools to apply color or lines to an image. Photoshop adds options such as opacity and different blending modes to its painting tools.
- You can save any selected area as a brush, and then use the brush to create repeated patterns.
- Layers are like sheets of virtual film with adjustable opacity. Each layer can contain different elements of an image.
- An image file with layers must be saved in the PSD format. You must flatten the layers before you can save the image in a Web format.

- Photoshop has dozens of creative filters that can be used alone or in combination to create thousands of different effects.
- The Tile Maker filter in ImageReady automates the construction of blended and kaleidoscopic images.
- Your background image should be interesting, but should be low contrast and not interfere with the legibility of the text above it.
- A tiled image may appear to have seams where the edges meet. Eliminate the seam to make the image look professional.
- Using straight HTML, you can add background images to the body and tables of Web pages.
- With style sheets you can add background images to any block element and control how the image tiles.

Review Questions

1. Using the Saturation mode with the Paintbrush tool, and black as the foreground color is the same as using which tool?
   a. Airbrush
   b. Burn
   c. Dodge
   d. Sponge
2. Which mode can you use to create a spatter effect?
   a. Brush Strokes
   b. Dissolve
   c. Multiply
   d. Screen
3. Which modes all produce darker images?
   a. Color Burn, Darken, and Multiply
   b. Darken, Multiply, and Screen
   c. Darken, Color Burn, and Overlay
   d. Darken, Overlay, and Screen
4. Which of the following brush spacing values produces a dotted line in which the spaces are twice the size of the brush marks?
   a. 33%
   b. 50%
   c. 100%
   d. 200%

5. Which of the following formats allows you to save layers with the image?
   a. GIF
   b. PSD
   c. Both GIF and PSD
   d. Neither GIF nor PSD
6. Which of the following commands can you use to merge all layers together?
   a. Flatten Layers
   b. Merge Visible
   c. Merge Down
   d. All of the above
7. How can you reposition a layer?
   a. With the Free Transform command
   b. With the Translate command in the Transform submenu
   c. With the Move tool
   d. All of the above
8. Which of the following filters allows you to preview the seams produced by a tiling image?
   a. Tile Maker
   b. Offset
   c. Custom
   d. Find Edges
9. What could you do if none of the Photoshop filters fit your needs?
   a. Search for third-party filters
   b. Use the Custom filter
   c. Combine multiple filters
   d. Any of the above
10. What happens if you run the Clouds filter over a completely red image?
    a. You see a red cloud pattern.
    b. You see white clouds over a blue background.
    c. You see white clouds over a black background.
    d. You see a cloud pattern based on the current foreground and background colors.

11. Many background images don't need a large color palette. Therefore, what image format is usually better for background images?
    a. GIF
    b. JPEG
    c. PNG
    d. Either GIF or JPEG
12. What is the easiest way to create a solid orange background?
    a. Set the body's background attribute to orange.
    b. Use a 1 × 1 pixel orange graphic in the background.
    c. Use a 1280 × 1024 orange graphic in the background.
    d. Any of the above
13. If you want to use yellow text on your page, what would be a good background image?
    a. One that is mostly light colors
    b. One that is mostly dark colors
    c. You should never use light-colored text, because it is too hard to read.
    d. One that is mostly yellow
14. How do you remove the seams in a tiled image?
    a. By blending opposite edges
    b. By turning the image into a kaleidoscopic image
    c. Either *a* or *b*
    d. You can never completely remove tile seams.
15. What is one of the last steps in creating a background image?
    a. Removing the seams
    b. Selecting the color
    c. Creating the pattern
    d. Reducing the contrast
16. Which technique would be inappropriate for removing the seams from a photographic background?
    a. Using the Blend Edges feature of the Tile Maker filter in ImageReady
    b. Using the Kaleidoscope feature of the Tile Maker filter in ImageReady
    c. Using the Offset filter and removing the seams with the Smudge tool
    d. Using the Offset filter and removing the seams with the Blur tool

17. What is a drawback of using style sheets to assign background images?
    a. No existing browser can display images this way.
    b. Only users with older browsers can see the images.
    c. Only users with newer browsers can see the images.
    d. You don't know who can or cannot view the images.
18. Where can you use a background image without using style sheets?
    a. Only in the body background
    b. Only in table backgrounds
    c. In the background of any block element
    d. Only in body and table cell backgrounds
19. Is background an HTML tag or an attribute?
    a. Tag
    b. Attribute
    c. Either *a* or *b*, depending on how you use it
    d. Neither
20. How would you make a background image tile vertically but not horizontally in Netscape version 3?
    a. By setting the background attribute in HTML
    b. By setting the background-repeat attribute in CSS
    c. With either method in *a* and *b*
    d. Netscape version 3 cannot tile background images this way.

Hands-on Projects

All of the following projects use Photoshop and files provided for you in the Chapter05 folder of your Data Disk, or in the Student Data/Chapter05 folder of your hard drive. You can write the HTML or CSS in any HTML or text editor.

Project 5-1: Create a Striped Background and Put in a Web Page

You have been using solid-color backgrounds in HTML because your manager does not want extra image files to slow the loading of pages. You convince him that a simple striped background image will make the pages much more attractive, but will also load quickly.

Complete these steps:

1. Create a 30 × 30 pixel image file called **stripeBackground.gif**.

2. Choose your colors. Click the **foreground color box** to open the Color Picker dialog box. In the Web color window next to the pound sign (#), type **009999** and click **OK** to produce a teal color. If you're using an older version of Photoshop, type **0** in the R box, **153** in the G box, and **153** in the blue box to produce the same teal color. Use **white** as the background color.
3. Select the upper-half of the image with the **Rectangular Marquee** tool. Use the rulers to see how much you've selected.
4. Color the upper-half of the image. Select the **Paint Bucket** tool. Fill the selected area with your foreground color.
5. Optimize the image. In the Indexed Color dialog box, set the Palette to **Exact**.
6. Save the image as **stripeBackground.gif** in a new directory on your desktop named |**project_5-1**. This image should be small and therefore load quickly, even with a slow modem.
7. In your text editor, open a new file and type the following code:

```
<html>
<body BACKGROUND="stripeBackground.gif">
some text
</body>
</html>
```

8. Save this file as **bg-test.html** in the project_5-1 folder.
9. Open your browser and open the new HTML file, **bg-test.html**. You'll see the stripes repeating across and down, covering the entire window.
10. The text is difficult to read. Add a table with a white background to contain the text. Your HTML file should look like this:

```
<html>
<body BACKGROUND="stripeBackground.gif">
<table BGCOLOR="#ffffff"><tr><td>
<some text
</td></tr></table>
</body>
</html>
```

11. Save **bg-test.html** and refresh your browser.

Project 5-2: Create a Tessellated Kaleidoscope

The striped background image you created in Project 5-1 is only a little more interesting than a solid color. Create a pattern that tiles seamlessly across the page.

Complete these steps:

1. Create a **100 × 100 pixel** image in Photoshop.
2. Select a **blue** foreground color, and scribble over the image with the **Paintbrush** tool, making sure to go over the edge.

3. Click **Filter** on the menu bar, point to **Texture**, and then click **Craquelure**. Use the default settings or adjust them to create an effect you like.
4. Save this image as **kaleidoscope.jpg** in a new folder named **project_5-2**.
5. Copy **bg-test.html** to the new folder, and edit it to make this new image the background image. View the HTML file in your browser. You can see that the edges are visible where they meet. You can remove the seams by using mirror images of the original.
6. Select the entire **image** and copy it.
7. Increase the Canvas Size to **200** × **200**, keeping the original image anchored in the upper-left corner.
8. Paste the clipboard selection three times. You see three new layers in the Layers palette.
9. Select **Layer 1** in the Layers palette, and move it to the upper-right corner of the canvas area.
10. Click **Edit** on the menu bar, point to **Transform**, and then click **Flip Horizontal**.
11. Select **Layer 2** in the Layers palette, and move it to the lower-left corner of the canvas area.
12. Click **Edit** on the menu bar, point to **Transform**, and then click **Flip Vertical**.
13. Select **Layer 3** in the Layers palette, and move it to the lower-right corner of the canvas area.
14. Click **Edit** on the menu bar, click **Transform**, and then click **Rotate 180**. Now all the layers reflect each other vertically and horizontally.
15. Click **Layer** on the menu bar, and then click **Flatten Image**.
16. Save the image as **kaleidoscope.jpg** and refresh your browser. The image should tile seamlessly.

Project 5-3: Create a Seamless Photo Tile

You have been given a photograph to use as a background. You realize you cannot use the kaleidoscope technique, because it would create backward and upside-down images. Remove the seams by blurring the edges.

Complete these steps:

1. Open **5-3.tif** from the Data Disk.
2. Click **Filter** on the menu bar, point to **Other**, and then click **Offset**.
3. Set the **Horizontal** offset to roughly half the width of the image (in this case, **50**).
4. Set the **Vertical** offset to roughly half the height of the image (in this case, **50**).
5. Under **Undefined Areas**, select **Wrap Around**. You see the seamed edges as they would appear in a tiled background image.
6. Use the **Blur** tool to blur the seams.

7. Use the **Smudge** tool to smear the edges near the seams, obscuring them. Do not smudge outside the canvas area.
8. Use the Levels dialog box to lighten the output levels.
9. Optimize the image, and save it as **photo.jpg** in a new folder named **project_5-3**.
10. Copy **bg-test.html** to the new folder, and edit it to make this new image the background image. View the HTML file in your browser.

Project 5-4: Create a Tiled Photo with ImageReady

ImageReady can automate the creation of tiled background images. It does not allow the same control as the process in the previous project, but it makes the process easier.

Complete these steps:

1. In ImageReady, open **5-3.tif** from the Data Disk.
2. Click **Filter** on the menu bar, point to **Other**, and then click **Tile Maker**.
3. In the dialog box that appears, select **Blend Edges** and set the **Width** to **10%**, and check the **Resize Tile to Fill Image** checkbox.
4. Click **OK**. Note that the outer 10% of the image has been removed and added to the opposite edge, and that the image has been resized accordingly.
5. Trim away the margin of transparent pixels.
6. Optimize and save this image as **photo2.jpg** in a new folder named **project_5-4**.
7. Copy **bg-test.html** to the new folder, and edit it to make this new image the background image. View the HTML file in your browser.

Project 5-5: Create a Large Background Image

Your client wants a large curved line over the top of the Web page. Style sheets will not help with this. You need to use a very large background image that will not tile.

Complete these steps:

1. Create a **1280 × 1024-pixel** image in Photoshop. This image is large enough to not tile on most monitors.
2. Select the **Elliptical Marquee** tool.
3. Move the pointer to the **100 × 100-pixel** mark, then drag down and to the right until you reach the lower-right corner of the canvas area.
4. Use the **Rectangular Marquee** tool to square off the upper-right corner, the lower-right corner, and the lower-left corner of the selection area.
5. Click **Select** on the menu bar, and then click **Inverse**.
6. Use the **Add Noise** filter to add some texture to the selection.
7. Click **Filter** on the menu bar, point to **Sketch**, and then click **Bas Relief**. Use the default settings, or adjust them as you like.

8. Use the Hue/Saturation dialog box to make the selection **green**.
9. This is a large image, but it needs to have a small file size. Optimize it to around **30K** and save it as **arc.jpg** in a new folder named **project_5-5**.
10. Insert the image as the background image in bg-test.html, and preview the page in a browser.

Project 5-6: Create a Patterned Tile

You need a background that looks like snowflakes. Although you have some snowflake images to work with, you do not want to smudge or blur them as the other techniques require. You need to create a brush for each type of footprint and paint these seamlessly over a background image.

Complete these steps:

1. Create a **100 × 100 pixel** image and give it a **light yellow** background.
2. Select a **dark blue** as the Foreground color.
3. Select the **Paintbrush** tool. From the Options bar, open the **Brush palette**.
4. Open the **Brush palette menu**, select **Assorted Brushes**, and then click **OK**.
5. From the Brush palette, select the **Snowflake** brush icon.
6. Click the **Snowflake** brush in the Brushes palette, and type **250** for the Spacing in the dialog box that appears.
7. Drag the pointer across the image from the bottom to the top of the image. You should see a line of snowflakes moving up the page. Repeat this step to create another line of prints. Try not to go over the edge of the image.
8. Set the Background color to the **yellow** in the image, and erase any snowflake that is cut off by the edge of the canvas area.
9. Click **Filter** on the menu bar, point to **Other**, and then click **Offset**. In the dialog box that appears, enter the same values as you did for Project 5-3.
10. Fill in the gaps with more snowflakes, making sure not to paint outside the canvas area.
11. Optimize and save this image as **wallpaper.gif** in a folder named **project_5-6**.
12. Insert the image as the background image in bg-test.html, and preview the page in a browser.

Project 5-7: Use a Background in a Table Using CSS

You can use style sheets to place backgrounds in table cells, but don't use the same method as you do for the body. If you do, every table cell will have the same background image. To control which cells display the background, you need to use a class.

Complete these steps:

1. In your text editor, create another HTML file and save it as **bg-test2.html** in the project_5-6 folder.

2. Type this code into your file:

```
<html
<head>
<style TYPE="text/css">
<!—
.bg2 {
background-image: url(wallpaper.gif);
background-repeat: repeat-x
}
//—>
</style>
</head>
<body>
<table HEIGHT="100%" WIDTH="100%" BORDER="1">
     <tr>
          <td WIDTH="200" BGCOLOR="#FFFFFF">
               some text
          </td>
          <td WIDTH="250" CLASS="bg2">
               some more text
          </td>
     </tr>
</table>
</body>
</html>
```

3. Save the file and view it in your browser. The cell on the right calls the bg2 class you defined in the style sheet and should display the background image, tiled horizontally.

Project 5-8: Create a Complex Background with Multiple Filters

Each filter lets you create many different effects. When you combine different filters you can create thousands of effects. Combine two filters to create a fire and smoke background.

Complete these steps:

1. In Photoshop, create a **200 × 200 pixel** image.
2. Set the Background color to **black** and the Foreground color to **red**.
3. Click **Filter** on the menu bar, point to **Render**, and then click **Clouds**. You should see a black background with red clouds. Run the filter a few more times to try different random patterns.
4. Use the Offset filter to preview the seams of the image.
5. Select the **Smudge** tool, select one of the specialty spatter brushes, and gently smudge away the seams. Use the **Blur** tool to further reduce the appearance of edges.
6. Click **Filter** on the menu bar, point to **Artistic**, and then click **Plastic Wrap**. Set the Highlight Strength to **10**, the Detail to **10**, and the Smoothness to **5**.

7. Click **OK**. You should see a fiery red and black background with wispy white smoke.
8. Reduce the contrast, optimize and save the image as **weird.jpg** in a new folder named **project_5-8**.
9. Copy bg-test.html to the folder, edit it to use this new image, and preview it in a browser.

Case Project

Add background images and colors to the pages you've completed so far for your portfolio. On at least one page, use a background image in the body of the page, setting the style sheet so that the image tiles vertically, but not across. On another page, use a background image in a table. Both background images should have reduced contrast so that text that appears over the image can be easily read.